# SERVICE MANUAL

## Color Television Receiver

## Model:KP2905QYT1

# IMPORTANT SERVICE SAFETY INFORMATION

Operating the receiver outside of its cabinet or with its back removed involves a shock hazard. Work on these models should only be performed by those who are thoroughly familiar with precautions necessary when working on high voltage equipment.

Exercise care when servicing this chassis with power applied. Many B plus and high voltage RF terminals are exposed which, if carelessly contacted, can cause serious shock or result in damage to the chassis. Maintain interconnecting ground lead connections between chassis, escutcheon, picture tube dag and tuner when operating chassis.

These receivers have a “polarized” AC line cord. The AC plug is designed to fit into standard AC outlets in one direction only. The wide blade connects to the “ground side” and the narrow blade connects to the hot “side” of the AC line. This assures that the TV receiver is properly grounded to the house wiring. If an extension cord must be used, make sure it is of the “polarized” type.

Since the chassis of this receive is connected to one side of the AC supply during operation, service should not be attempted by anyone not familiar with the precautions necessary when working on these types of equipment.

When it is necessary to make measurements or tests with AC power applied to the receiver chassis, an Isolation Transformer must be used as a safety precaution and to prevent possible damage to transistors. The Isolation Transformer should be connected between the TV line cord plug and the AC power outlet.

Certain High voltage (HV) maybe cause X-ray radiation. Receivers should not be operated with HV levels exceeding the specified rating for their chassis type. Higher voltage may also increase the possibility of failure in the HV supply.

It is important to maintain specified values of all components in the horizontal and high voltage circuits and anywhere else in the receive that could cause a rise in high voltage, or operating supply voltages. No changes should be made the original design of the receiver.

Components shown in the shaded areas on the schematic diagram and/or identified by in the replacement parts list should be replaced only with exact factory recommended replacement parts. The use of unauthorized substitute parts man creats may create shock, fire, X-ray radiation, or other hazards.

To determine the presence of high voltage, use an accurate high impedance HV meter connected between the second anode lead and he CRT dag grounding device. When servicing the High Voltage System remove static charges from it by connecting a 10K Ohm resistor in series Wan insulated wire(such as test probe) between the picture tube dag and $2^{nd}$ anode lead(Have AC line cord disconnected from AC supply).

The picture tube use in this receiver employ integral implosion protection. Replace with a tube of the same type number for continued safety. Do not lift picture tube by the neck. Handle the picture tube only when wearing shatterproof goggles and after discharging the high voltage completely, Keep others without shatter proof goggles away.

Before returning the receiver to the user, perform the following safety checks:

1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the receiver.

2. Replace all protective devices such as non-metallic control knobs, insulating fishpapers, cabinet backs, adjustment and compartment covers of shiedls, isolation resistor-capacitor networks, mechanical insulators etc.

3. To be sure that not shock hazard exists, a check for the presence of leakage current should be made at each exposed metal part having a return path to the chassis (antenna, cabinet metal, screw heads knobs and/or shafts, escutcheon, etc.) in the following manner.

Plug the AC line cord directly into a 220V, AC receptacle. (Do not use an Isolation Transformer during these checks.) All checks must be repeated with the AC line cord plug connection reversed. (If necessary, a nonpolarized adapter plug must be used only for the purpose of completing these checks.)

If available, measure current using an accurate leakage current tester. Any reading of 0.35mA or more is excessive and indicates a potential shock hazard which must be corrected before returning the receiver to owner.

If a reliable leakage current tester is not available, this allernate method of measurement should be used. Using two clip leads, connect a 1500 Ohm, 10 watt resistor paralleled by a 0.15MF capacitor in series with a known earth ground, such as a water pipe or conduit and the metal part to be checked. Use a VTVM or VOM with 1000 Ohms per Volt, or higher, sensitivity to measure this AC voltage drop across the resistor,. Any reading of 0.35 volt RMS of more is excessive and indicates potential shock hazard which must be corrected before returning he receiver to the owner.

# ALIGNMENT PROCEDURES

# PLEASE READ BEFORE ATTEMPTING SERVICE

1. Use an Isolation Transformer when performing any service on this chassis.
2. Never disconnect any leads while receiver is in operation.
3. Disconnect all power before attempting an repairs.
4. Do not short any position of the circuit while the power is on.
5. For safety reasons, replacing any components should be according with identical replacement parts (SEE PARTS LIST).
6. Before testing, warm up the TV for at least 30 minutes and demagnetize the CRT with an external degaussing coil.
7. When removing a PCB or related component, after unfastening or changing a wire, be sure to put the wire back in its original position.
8. Inferior silicon grease can damage IC's and transistors. When replacing IC's and transistors, use only specified silicon grease,. Remove all old silicon when applying new silicon.
9. Before removing the anode cap, discharge eiecticity because it contains high voltage.
10. To adjust MCU N602 installed in the chassis, you should write master slice's data into this MCU before installing, and no any data except this test manual listed is admitted to be modified without designer's agree.

## Test environment

1. Temperature: 15~35°C
2. Relative humidity: 45 ~ 75%
3. Air pressure: 86 ~ 106kPa

## TEST EQUIPMENT

1. DC Power Suply (14V)
2. Oscilloscope
3. High Voltage meter 40KV
4. Multi-meter(internal resistance:DC≥20kΩ/V,AC≥5kΩ/V)
5. Ammeter(0.5 grade,DC3mA)
6. Degaussing Coil
7. PHILIP Picture Signal Generator(PH5820 or other type)

## Factory menu

1. Press MENU button to display the menu, then press RECALL button five times continuously to enter factory service menu. Press MENU button to call up FACTORY1-6 after entering into the factory service menu.

2. Press PROG. ▲▼button to select the item (the selected item will turn into red), then use VOL+/VOL- button to adjust the parameter.

3. Press RECALL button again to exit factory service menu.

## IF adjustment

1. Disconnect IF end of RF Tuner.

2. Apply 8V stable power supply to PIN of N954(C963 "+") input.

3. Connect R108 and R156 joint to GND, apply 5V to XS604 pin1, then connect Signal generator (PH5820) to IF input (R101 and C101 joint) and apply 95dB 38.9MHz signal.

4. Connect oscilloscope or digital voltmeter anode to Pin22 of N101, and cathode to GND, adjust IFT T101 until the measured point level reading on the voltmeter is 2.50±0.05V.(Core inside IFT)

5. Apply 5V to R108 and R156 joint, and connect pin 1 of XS604 to GND, then apply 95dB 33.9MHz signal. Connect oscilloscope or digital voltmeter anode to Pin22 of N101, and cathode to GND, adjust RP121 until the measured point level reading on the voltmeter is 2.50±0.05V.

6. Reconnect IF end.

## Check power supply and +B DC adjustment.

1. Check if the AC power supply is normal.

2. Receive TV broadcasting signal and adjust picture to standard mode.

3. Check voltage value between Earth and C910 + that is on the main power PCB board with DC voltmeter.

4. Then receive traditional TV signal, adjust RP950 to make +B voltage at two end of C961 meets BOM requirement.

## High voltage check and filament voltage check

1. Check AC voltage and +B are within the pointed range before calibrating the high voltage.

2. Connect high voltmeter to anode of CRT (G4).

3. Turn on the receiver and set Brightness and Contrast to the minimum value. Swap TV to AV mode (no signal applied)

4. The high voltage must be measured below 35Kv under any mode or brightness condition, or contrast and Tint are adjusted to the maximum or the minimum value,.

5. Filament voltage must be measured within the range of 6.3±0.2Vrms by virtual value meter.(Beijing Matsushita Tube)

## FOCUS adjustment

1. Receive five circles pattern and adjust the pattern to normal status.

2. Adjust focus potentiometer to obtain the best focus of the pattern.

## Horizontal scanning, vertical scanning and geometry correction adjustment

Description: 3 sets of horizontal and vertical parameters need to adjust, including:Under TV/AV mode, PAL 100i，PAL 75i，NTSC 120I；

**Receive five circles pattern signal, then enter into factory menu to call up FACTROY1.**

| | | |
|---|---|---|
| V SCROLL | 0-255 | |
| V SIZE | 0-255 | Adjust it so that the vertical picture reproduction display ratio is 92%±2% |
| V SCOR | 0-255 | Adjust it so that upper pane and bottom pane of the pattern are the same as the middle pane. |
| V SHIFT | 0-255 | Vertical center |
| V LINEAR | 0-255 | Vertical linearity |
| ANGLE | 0-255 | Parallelogram correction |
| V ZOOM | 0-255 | Vertical zoom |

**Call up FACTORY2**

| | | |
|---|---|---|
| H SIZE | 0-255 | Adjust it so that the horizontal picture reproduction display ratio is 92%±2% |
| H SHIFT | 0-255 | Adjust pattern horizontal center |
| A LINE | ON/OFF | To display a horizontal light line on the pattern. (no adjustment needed at this time) |
| UP CORNER | 0-255 | Adjust it so that vertical lines are straight at upper corner (left and right). (Receive crosshatch signal) |
| LOW CORNER | 0-255 | Adjust it so that vertical lines are straight at low corner (left and right). (Receive crosshatch signal) |
| V BOW | 0-255 | Adjust bow distortion. (Receive crosshatch signal) |
| TRAPEZIUM | 0-255 | Adjust trapezium distortion to make it just disappeared. (Receive crosshatch signal). |
| PARABOLA | 0-255 | Adjust Parabola distortion to make it just disappeared. (Receive crosshatch signal). |
| H SYNC | 0-255 | Set to 3 under TV/AV mode。 |

**Call up FACTORY4**

| | | |
|---|---|---|
| NICAM | ON | |
| V-EHT | 30 | （No adjustment） |
| H-EHT | 30 | (no adjustment) |
| HBLANK TIME | 0-63 | (Adjust horizontal blank time.) |
| HBLANK PHASE | 0-63 | (Adjust horizontal blank phase.) |
| AFC EHT | 0 | |
| AFC ON/OFF | ON | |
| PROGRAM NUMB | 00 | Set program number when turn TV on. |

| | | |
|---|---|---|
| G-AV-ON | 00 | Set TV/AV status when turn TV on |
| FREQ | XX | （Check data and no adjustment needed） |

## Grid voltage adjustment

Enter into the menu firstly and set color to normal status (9300K).

1. Enter into factory menu, call up FACTORY5 and set the initial value as technics card shown:

Settings:

| | | | |
|---|---|---|---|
| MAX | BRIGHTNES | XX | |
| MIN | BRIGHTNES | XX | |
| MID | BRIGHTNES | XX | (When you adjust sub-brightness, you need to adjust this value) |
| MAX | CONTRAST | XX | |
| MIN | CONTRAS | XX | |
| MID | CONTRAST | XX | |
| P60Hz MODE | ON/OFF | | On or off 60P mode |
| HOTEL MODE | ON/OFF | | On or off hotel mode |
| SECAM L’ | ON/OFF | | Has SECAM L system or not |
| WPON_OFF | ON | | |

2.Call up FACTORY3 to confirm the following values:

| | | |
|---|---|---|
| RED | GAIN | 55 |
| BLUE | GAIN | 55 |
| GREEN | GAIN | 55 |
| RED | LEVEL | 196 |
| GREEN | LEVEL | 196 |
| BLUE | LEVEL | 196 |

3.Under standard status, please adjust flyback transformer SCREEN potentiometer to the minimum position. Call up FACTORY2 and set A LINE ON/OFF to ON position, then adjust flyback transformer SCREEN potentiometer to make a horizontal light line just appears on the screen.

## White balance adjustment

Enter menu firstly to set COLOR to NORMAL. (9300K)

1. Receive left black right white signal which with color sync signal, adjust brightness, contrast to make brightness in dark area is 5 Nit, in bright area is 80 Nit.

2. Enter factory service menu, call up FACTORY 3

Adjust

| | | | |
|---|---|---|---|
| RED | GAIN | 0-63 | |
| GREEN | GAIN | 0-63 | |
| BLUE | GAIN | 50-63 | |
| RED | LEVEL | 0-255 | |
| GREEN | LEVEL | 0-255 | |
| BLUE | LEVEL | 196 | (it usually uses factory value, no adjustment needed) |

Adjust black and white at chromaticity coordinate to satisfy the requirement (X=0.283, Y=0.297), or plug auto test jack to adjust white balance automatically.

3. Set COLOR to COLD and adjust COLOR TEMPERATURE is 12000K. (X=0.272,Y=0.279)

4. Set COLOR to WARM and adjust COLOR TEMPERATURE is 6500K. (X=0.313,Y=0.329)

**Sub-brightness adjustment**

Enter FACTORY5 again, adjust MID BRIGHTNES XX (adjust within 30~38), when picture is normal status, the gray scale is eight panes and a half.

**Check sound effect parameters. (no adjustment)**

Enter factory service menu, call up FACTORY6 to check parameters settings:

| | | |
|---|---|---|
| DBE STRENGTH | 115 | |
| DBE HARMONIC | 30 | |
| SURROUND SPATIA | 63 | |
| SURROUND STRENG | 63 | |
| DBE LIMIT | 22 | |
| VOL MAX | 60 | |
| VOL MIN | 25 | |
| VOL MID | 50 | |
| FM PRESCALE | 30 | Set power amplifier scale under TV mode |
| HOTEL MAXVOLUME | 90 | Set the maximum volume under hotel mode |

**Teletext OSD language setting**

Enter into factory menu and call up FACTORY 7 to set language for the following 24 items:

PRILAN0
PRILAN1
PRILAN2
PRILAN3
PRILAN4
PRILAN5
PRILAN6
PRILAN7
SECLAN0
SECLAN1
SECLAN2
SECLAN3
SECLAN4
SECLAN5
SECLAN6
SECLAN7
X26LAN0
X26LAN1

X26LAN2
X26LAN3
X26LAN4
X26LAN5
X26LAN6
X26LAN7

## Electron beam test

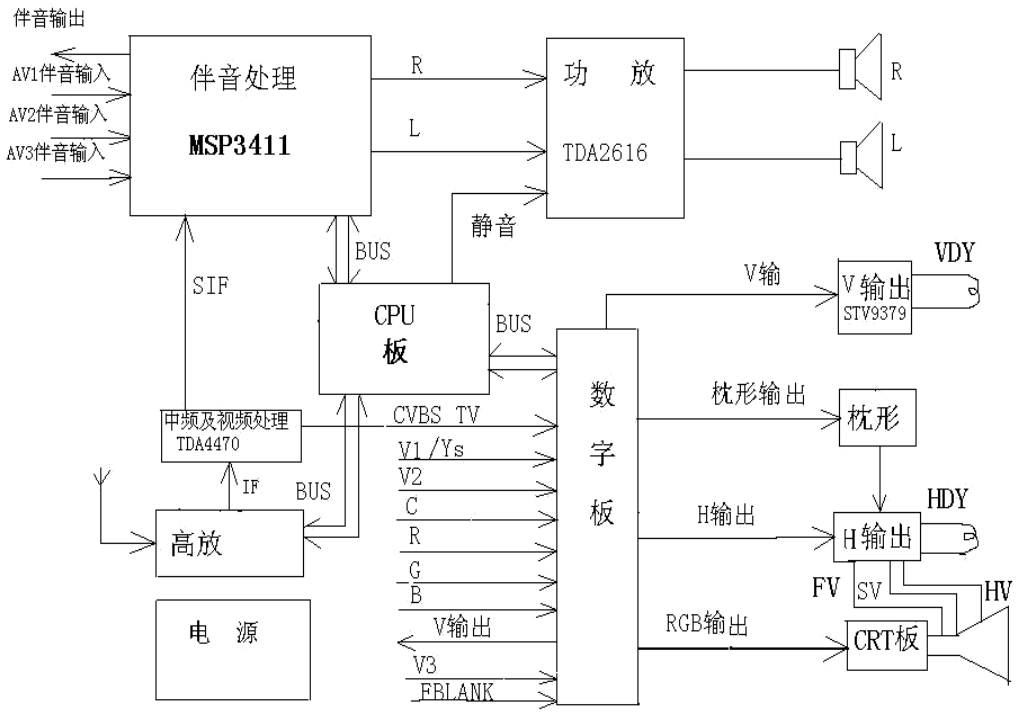
Apply white signal, adjust brightness and contrast to the maximum value, voltage at two ends of test resistor R415 (100 ohm) should be measured below 0.22V (Beijing Matsushita CRT).

## HF AGC adjustment

1. Receive signal (U channel)
2. Set input field strength to 60dBμV (PAL DK) gray scale signal.
3. Adjust RP120 until value of C119 anode is just 4.0V±0.1V。

Demo version
www.fcoder.com

模拟部分导原理框图



330.00

290.00

35007360
KP2905QYT
2005.03.01 REV-01

COLD

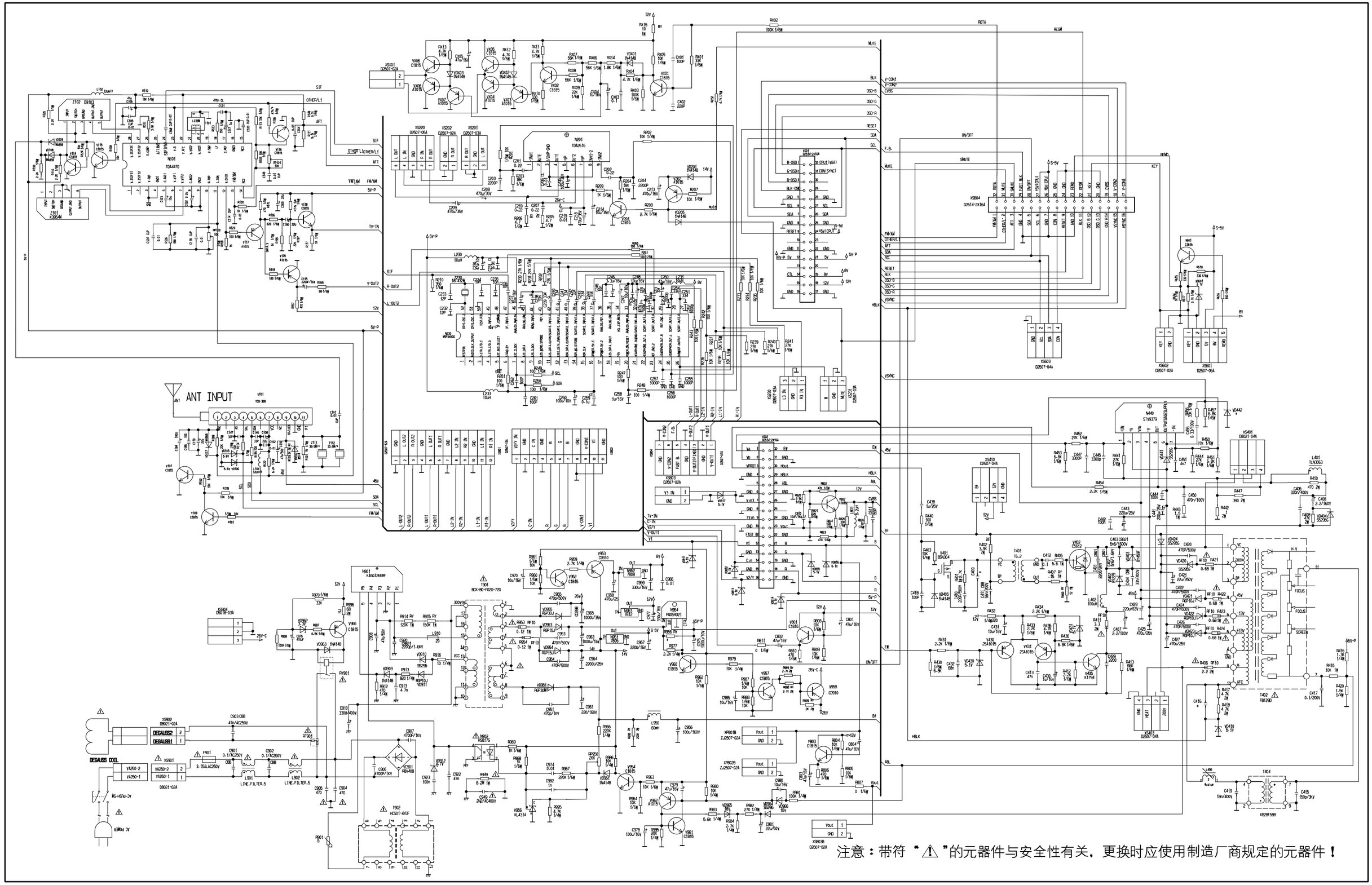
HOT!

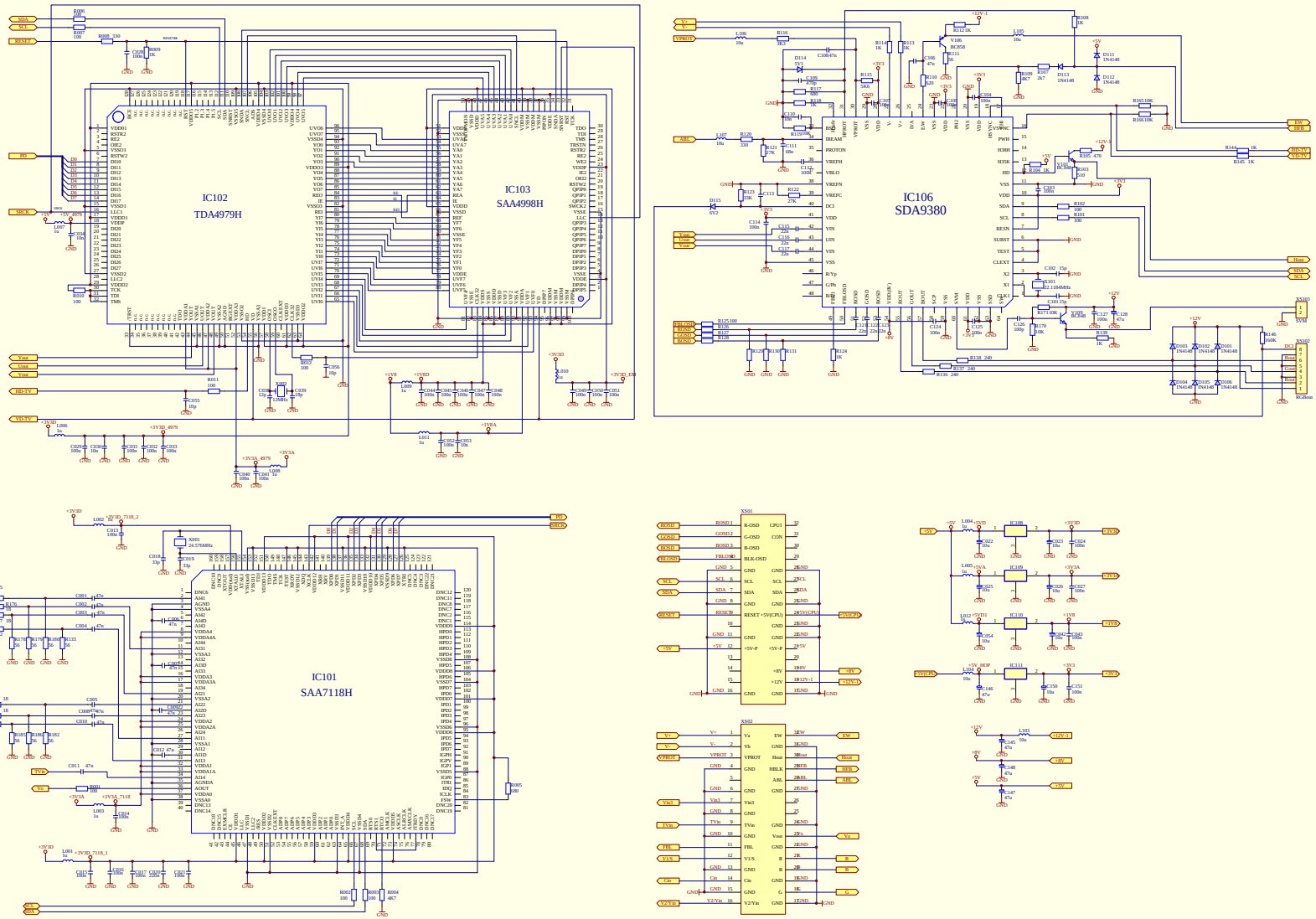
CAUTION
LIVE AREA

F901 FUSE T3.15AL250V

W1.2

W1.2


ANT INPUT
DEGAUSS COIL
注意：带符 "⚠"的元器件与安全性有关，更换时应使用制造厂商规定的元器件！




| | | | |
|---|---|---|---|
| Title | | | |
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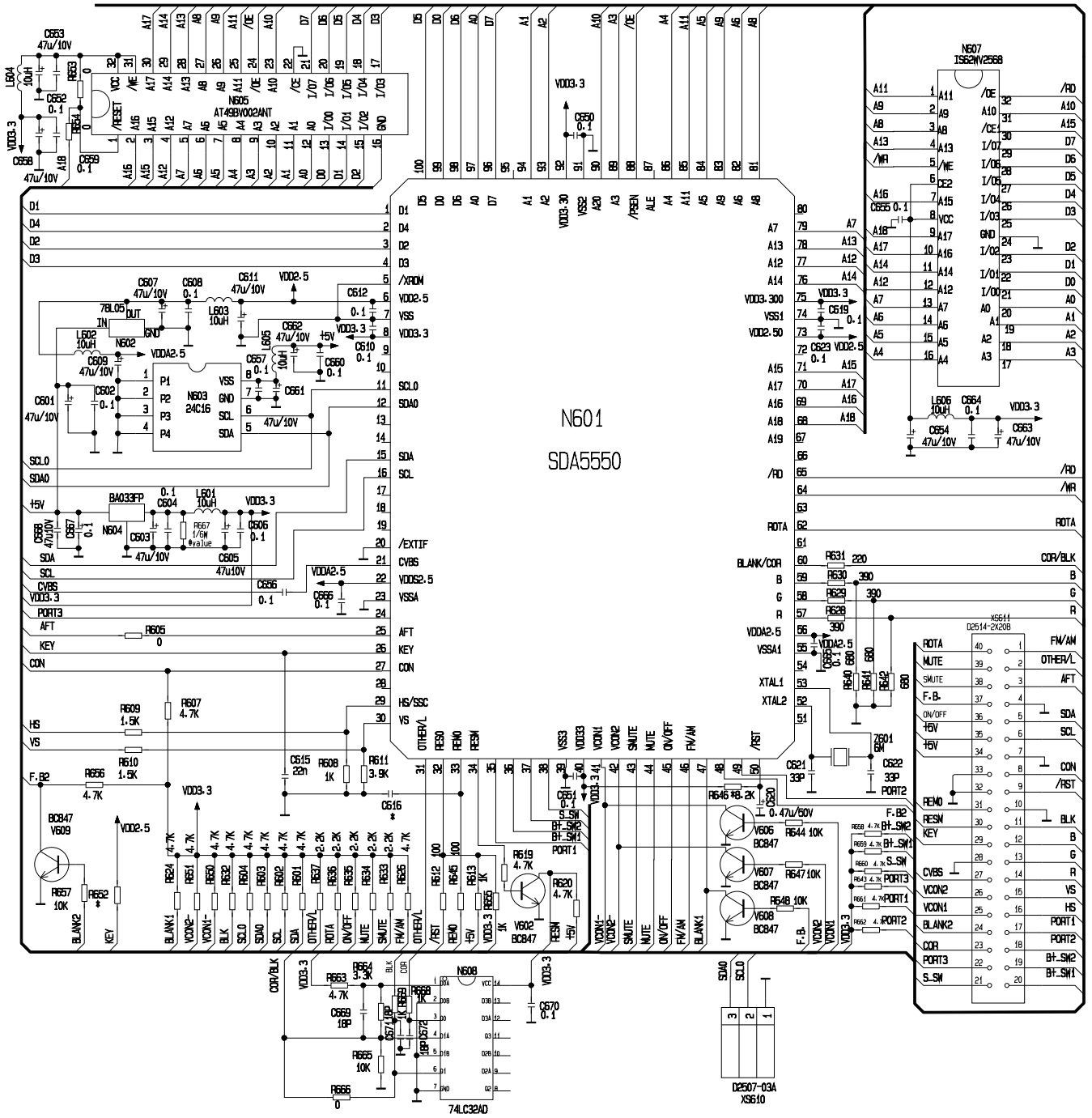
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XS611
D2514-2X20
XS610
D2507-03A
Z601
6M
VDD3.3
VDD2.5
VDDA2.5
+5V
/RD
/WR
/RST
SCL0
SDA0
SCL
SDA
CVBS
HS
VS
F.B2
BC847
V609
V606
V607
V608
V602
R657
10K
R644 10K
R647 10K
R648 10K
R619
4.7K
R620
4.7K
R665
10K
R666
0
R605
0
R609
1.5K
R607
4.7K
R610
1.5K
R656
4.7K
R608
1K
R611
3.9K
R645 *8.2K
R663
4.7K
R664
3.3K
C615
33P
C616
*
C621
33P
C622
33P
C620
0.47u/50V
C669
18P
C672
18P
C671
*
C670
0.1
C650
0.1
C653
47u/10V
C652
0.1
C658
47u/10V
C659
0.1
C607
47u/10V
C608
0.1
C611
47u/10V
C612
0.1
C609
47u/10V
C610
0.1
C662
47u/10V
C657
0.1
C660
0.1
C661
47u/10V
C601
47u/10V
C602
0.1
C603
47u/10V
C604
0.1
C605
47u/10V
C606
0.1
C667
1/8W
C668
47u/10V
C667
0.1
C666
0.1
C665
0.1
C664
0.1
C654
47u/10V
C663
47u/10V
C619
0.1
C623
0.1
L604
10uH
L603
10uH
L602
10uH
L601
10uH
L605
10uH
L606
10uH
R631 220
R630 390
R629 390
R628 390
R640 680
R641 680
R642 680
R658 4.7K
R659 4.7K
R660 4.7K
R643 4.7K
R661 4.7K
R662 4.7K
F.B2
BH_SW2
BH_SW1
S_SW
PORT3
PORT1
PORT2
FW/AM
OTHER/L
AFT
SDA
SCL
CON
/RST
BLK
B
G
R
VS
HS
PORT1
PORT2
BH_SW2
BH_SW1
COR/BLK
ROTA
MUTE
SMUTE
F.B.
ON/OFF
+5V
REMO
RESM
KEY
CVBS
VCON2
VCON1
BLANK2
COR
PORT3
S_SW
BLANK1
OTHER/L
/RST
REMO
RESM
VCON2-
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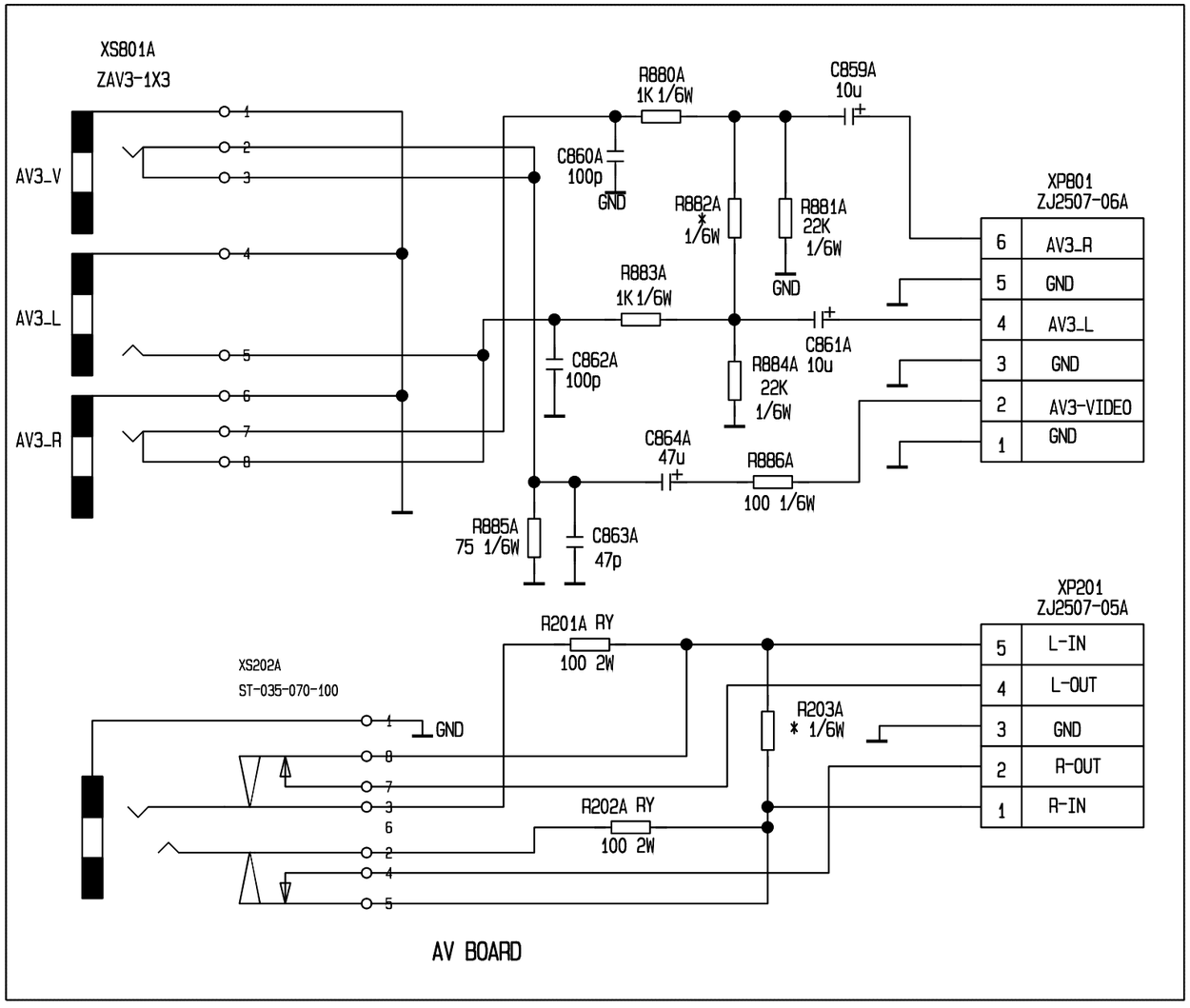
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*
1/6W
R881A
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4 AV3_L
3 GND
2 AV3-VIDEO
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4 L-OUT
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1 R-IN
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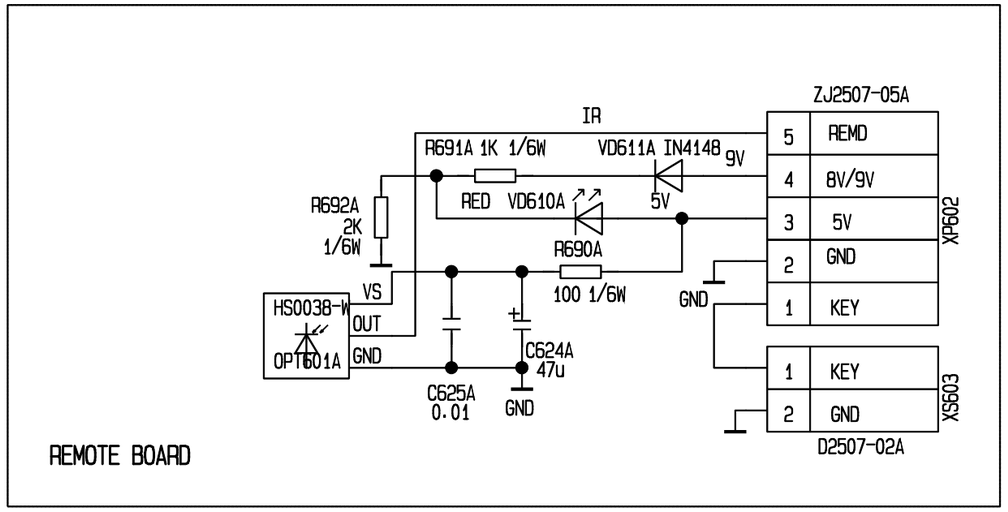
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VS
HS0038-W
OUT
GND
OPT601A
C625A
0.01
C624A
47u
GND
ZJ2507-05A
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3 5V
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XP602
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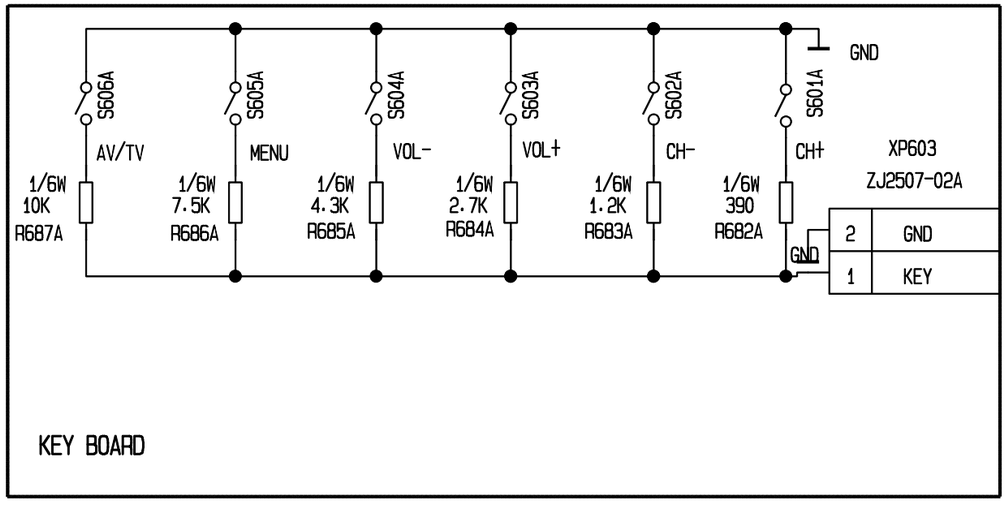
REMOTE BOARD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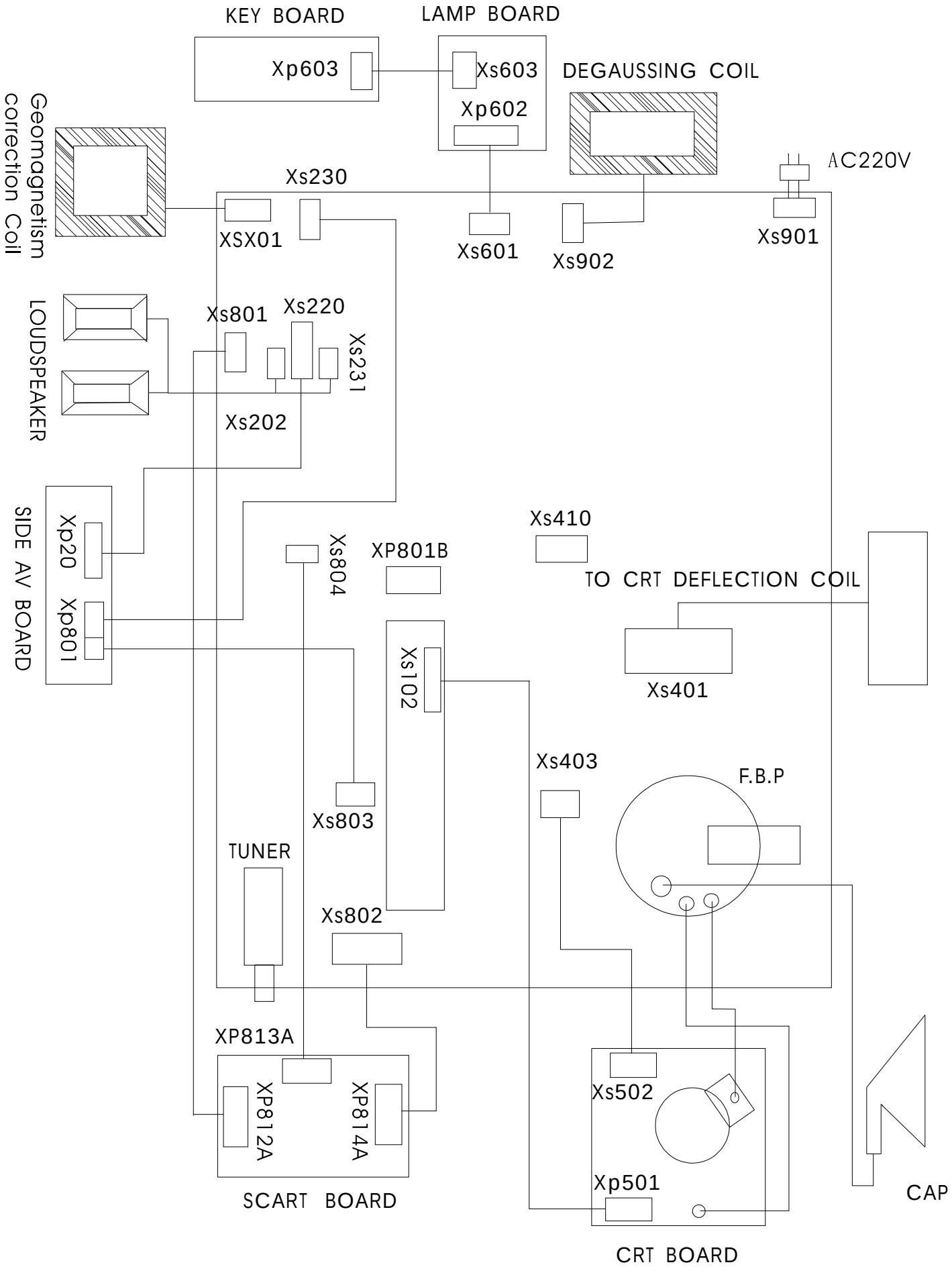
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Xs902
Xs901
LOUDSPEAKER
Xs801
Xs220
Xs231
Xs202
SIDE AV BOARD
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Xp801
Xs804
XP801B
Xs410
TO CRT DEFLECTION COIL
Xs102
Xs401
Xs403
F.B.P
Xs803
TUNER
Xs802
XP813A
XP812A
XP814A
Xs502
Xp501
CAP
SCART BOARD
CRT BOARD